



X-Plain™
Temporomandibular Joint
Disorders
Reference Summary

Temporomandibular joint disorders, or TMJ disorders, are a group of medical problems related to the jaw joint.

TMJ disorders can cause headaches, ear pain, bite problems, clicking sounds, locked jaws, and other symptoms that can affect quality of life for the patient.

This reference summary explains temporomandibular joint disorders. It reviews the anatomy of the jaw, symptoms, causes, diagnosis, and treatment options for TMJ disorders.

Anatomy

The temporomandibular joint¹, or TMJ, connects the lower jaw called the mandible, to the temporal bone at the side of the head. There are two temporomandibular joints, one on each side of the jaw.

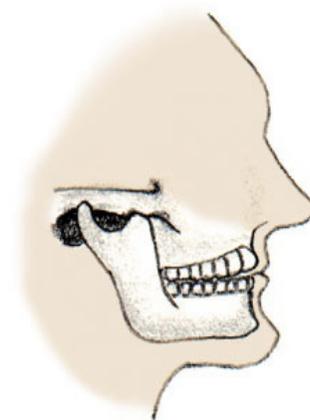
Since TM joints are flexible, the jaw can move smoothly up and down and side to side, allowing us to talk, chew and yawn. Muscles attached to and surrounding the jaw joint control its position and movement.

When we open our mouth, the rounded ends of the lower jaw joint, called *condyles*, glide along the joint socket of the temporal bone.

The condyles slide back to their original position when we close our mouth.

To keep this motion smooth, a soft disc lies between the condyle and the temporal bone. This disc is made of cartilage that absorbs shocks to the TM joint from chewing and other movements.

A tendon is the part of a muscle that attaches to a bone.



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Types of TMJ Disorders

TMJ disorders can be grouped into three main categories:

Muscle Disorders

These disorders include pain in the muscles that control jaw function, as well as the muscles of the neck and shoulder. This type of pain is called *myofascial pain* and is the most common form of TMJ disorders.

Derangement Disorders

These disorders are related to derangement of the TM joint, such as dislocated jaw, displaced disk, and injured bone.

Degenerative Disorders

These disorders are related to wear and tear of the TM joint, such as arthritis. They lead to the destruction of the cartilage that covers the TM joint.

Causes

TMJ disorders may be caused by injuries, wear due to aging, and behavioral factors.

A severe injury to the TMJ can cause TMJ disorders. For instance, a heavy blow to the jaw could fracture the bones of the joint or damage the disc, disrupting the smooth motion of the jaw and causing pain or locking of the joint.

Wear and tear of the TM joint due to aging can cause TMJ disorders, such as arthritis. Arthritis in the jaw joint may also result from injury.

Certain behaviors or conditions can sometimes cause TMJ disorders. For instance, regular gum chewing can lead to TMJ disorders in some people.

Teeth grinding and teeth clenching can increase wear on the cartilage of the TM joint. This could lead to ear and jaw pain. Sometimes people who are under stress grind and clench their teeth.

A malocclusion, or bad bite, may cause a person to chew mostly on one side of the teeth, sometimes causing TMJ disorders.

Signs & Symptoms

A variety of symptoms may be linked to TMJ disorders. Pain, particularly in the TM joint muscles, is the most common symptom.

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Other symptoms of TMJ disorders include

- limited movement or locking of the jaw
- pain in the face, neck or shoulders
- painful clicking, popping, or grating sounds in the jaw joint when opening or closing the mouth
- a sudden, major change in the way the upper and lower teeth fit together

Symptoms such as headaches, earaches, dizziness, and hearing problems are sometimes related to TMJ disorders.

People with clicking or popping in the jaw joint most likely have a disc in an abnormal position. As long as the displaced disc causes no pain or problems, no treatment is needed.

Occasional discomfort in the jaw joint or chewing muscles is quite common and is usually not a cause for concern. You should see a doctor if pain is severe or if it does not go away.

Diagnosis

Since the exact causes and symptoms of TMJ disorders are not known, diagnosing these disorders can be difficult.

There is no single test to diagnose TMJ disorders. In most cases, the patient's description of symptoms, combined with a simple physical exam of the face and jaw, provides information useful for diagnosis.

The physical examination includes feeling the jaw joints and chewing muscles for pain or tenderness; listening for clicking, popping or grating sounds during jaw movement; and checking for limited motion or locking of the jaw while opening or closing the mouth.

Checking the patient's dental and medical history is very important. In most cases, this provides enough information to locate the pain or jaw problem, make a diagnosis, and start treatment to relieve pain or jaw locking.

Regular dental x-rays and TMJ x-rays called *transcranial radiographs* are not always useful for diagnosing TMJ disorders. Other x-ray techniques, such as arthrography², MRI³, and CAT scans⁴ may be needed.

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Treatment

Treatment of TMJ disorders starts with conservative therapies. Conservative treatments are simple and do not invade the tissues of the face, jaw or joint. Since most TMJ disorders are temporary and do not get worse, simple conservative treatment is all that is usually needed to relieve discomfort.

Irreversible treatments cause permanent changes in the structure or position of the jaw or teeth.

Self-care practices that are useful for easing TMJ disorders symptoms include rest, heat and ice treatment, and anti-inflammatory medications.

Jaw rest can help heal TMJ joints. Patients should avoid chewing gum, eating hard, chewy foods, and opening their mouth very wide.

Heat and ice can relax the muscles. Immediately after an injury to the TM joint, treatment with cold is better than heat.

The doctor can prescribe medications to treat inflammation, relax the muscles, or control pain. For minor pain, non-prescription medications can help.

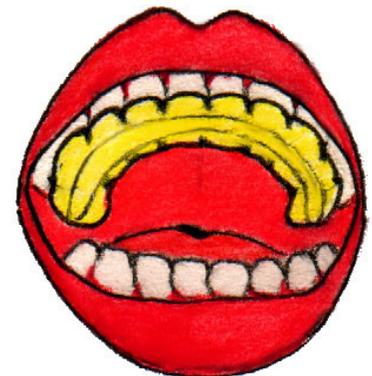
With medication, the doctor may recommend physical therapy to do at home, which focuses on gentle muscle stretching and relaxing exercises.

If pain is due to grinding the teeth when under stress, relaxing techniques to manage stress can help reduce the pain of a TMJ disorder.

The doctor may recommend an oral appliance, also called a splint or bite plate. This is a plastic guard that fits over the upper or lower teeth. The splint can help reduce clenching or grinding, which eases muscle tension.

An oral splint should be used only for a short time and should not cause permanent changes in the bite. If a splint causes or increases pain, the patient should stop using it and see the doctor.

Irreversible treatments that have not been proven to be effective – and may make the problem worse – include orthodontics to change the bite; crown and bridge work to balance the bite; grinding down teeth to bring the bite into balance, called “occlusal



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adjustment"; and repositioning splints, also called orthotics, which permanently alter the bite.

Surgical treatments are controversial, often irreversible, and should be avoided where possible. There have been no long-term clinical trials to study the safety and effectiveness of surgical treatments for TMJ disorders. Nor are there standards to identify people who would most likely benefit from surgery. Failure to respond to conservative treatments, for example, does not automatically mean that surgery is necessary.

Surgical replacement of jaw joints with artificial implants may cause severe pain and permanent jaw damage. Some of these devices may fail to function properly or may break apart in the jaw over time. If you have already had temporomandibular joint surgery, be very cautious about considering additional operations. Persons undergoing multiple surgeries on the jaw joint generally have a poor outlook for normal, pain-free joint function. Before undergoing any surgery on the jaw joint, it is extremely important to get other independent opinions and to fully understand the risks.

Summary

Temporomandibular joint disorders are a group of medical problems related to the jaw joint. They can lead to headache, ear pain, bite problems, clicking sounds, or locked jaws.

TMJ disorders are usually not very disabling and can be treated with rest, physical therapy, and medication.

Thanks to medical advances, treatment is available for the more serious TMJ disorders, allowing most patients to enjoy healthy lives free from pain!

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¹ If you place your fingers just in front of your ears and open your mouth, you can feel the joint on each side of your head.

² Arthrography is the injection of dye in joints to visualize them better with x-rays.

³ MRI, or Magnetic Resonance Imaging, is a technique that allows the doctor to create pictures of areas inside the body by using a magnet linked to a computer.

⁴ CAT Scan or Computed Axial Tomography scan is a radiological test that provides pictures of structures inside the body by taking multiple X-ray images.

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